

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. 86-27

WASTE DISCHARGE REQUIREMENTS
(SITE CLEANUP REQUIREMENTS) FOR:

HEWLETT PACKARD
640 PAGE MILL RD.
PALO ALTO
SANTA CLARA COUNTY

STANFORD UNIVERSITY
PALO ALTO
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

1. Hewlett Packard, hereinafter called a discharger, by application submitted February 28, 1986 applied for issuance of Waste Discharge Requirements for their facility located at 640 Page Mill Road in Palo Alto. The land is owned by Stanford University, also considered a discharger.
2. The site consists of two main buildings and a storage building, as shown on Attachment 1, SitePlan, hereinafter a part of this order. The complex houses research and production facilities associated with Hewlett Packard's Optoelectronics Division.
3. The site is located on a series of overlapping alluvial fans deposited by east-flowing streams along the edge of the foothills of the Santa Cruz Mountains west of the site. The land has been leased by Hewlett Packard since 1964.
4. The subsurface soil and groundwater at this site are polluted with organic solvents believed to have leaked from an underground storage tank installed in 1967. Compounds stored in this tank included 1,1,1 trichloroethane (TCA), trichloroethylene (TCE), toluene, acetone, isopropanol and xylene. The tank and 100 cubic yards of soil were excavated in 1981.
5. Investigations performed by Engineering Science (1981), William Cotton and Associates (1982), Applied Earth Consultants (1983, 1984, 1985), and Woodward-Clyde consultants (1985, 1986), indicated the presence of chlorinated solvents (TCA, 1,1 dichloroethene (1,1-DCE), Trans-1,2-DCE, methylene chloride, and TCE) in the shallow groundwater at concentrations as high as 340,000 ppb TCE. Acetone and isopropanol (IPA) were also detected at high levels in wells near the former tank area. The highest concentration detected in wells located approximately 800 feet downgradient from the source was 3800 ppb TCE in samples taken in November 1985.

6. Wells installed by Woodward-Clyde in November 1985 show that pollutants have migrated downgradient to El Camino Real and form a plume under much of the site. A well constructed in the next deeper saturated zone showed non-detectable levels of pollutants.
7. The site is underlain by primarily continuous interbeds of unconsolidated clayey to silty sand and sandy clays. The uppermost saturated zone was encountered between 20 and 56 feet deep. The groundwater gradient in this zone is northeast toward the San Francisco Bay and has an approximate value of 1.3×10^{-3} feet/foot.
8. There are four backup municipal wells and several private wells downgradient from this site. The closest municipal well is approximately 1/2 mile to the northeast and the closest private well is approximately 1 1/4 mile to the northeast. The municipal wells were sampled in April 1985 and found to have non-detectable levels of pollutants. Three of the private wells closest to this site in the downgradient direction were sampled in the fall 1985 and showed non-detectable levels of pollutants.
9. Hewlett Packard submitted a proposal for further groundwater investigation to the Regional Board staff on January 24, 1986. The plan, which has been approved by the Executive Officer, includes the following:
 - a. Further lateral extent determination using soil-gas monitoring off-site and subsequent installation of groundwater monitoring wells.
 - b. Determination of vertical extent of pollution with the construction of two additional wells to the next deeper saturated zone.
 - c. Pilot testing of a system to remove volatile organic compounds from the unsaturated zone using a soil-gas extraction well.
10. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on July 21, 1982. The Basin Plan contains water quality objectives for South San Francisco Bay and contiguous surface and groundwaters.
11. The beneficial uses of South San Francisco Bay and tributary water bodies are:
 - water contact recreation
 - non-contact water recreation
 - wildlife habitat
 - warm and cold fresh water habitat
 - fish migration
 - industrial service and process supply
 - navigation
 - agricultural water supply

12. The beneficial uses of the groundwaters are:

municipal and domestic water supply
industrial service and process supply
agricultural water supply

13. The Board has notified the discharger and all interested agencies and persons of its intent to issue waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

14. The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

15. This project constitutes a minor modification to land and such activity is thereby exempt from the provisions of the California Environmental Quality Act (CEQA) in accordance with Section 15304 of the Resources Agency Guidelines.

IT IS HEREBY ORDERED, that the dischargers, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS:

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect beneficial uses of the groundwaters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants or adversely spread any pollutants from other sites is prohibited.

B. SPECIFICATIONS:

1. The storage, handling, treatment or disposal of polluted soil or groundwater shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. The dischargers shall conduct monitoring activities as needed to define the local hydrogeological conditions, and the lateral and vertical extent of the soil and groundwater pollution in and contiguous to the zone of known pollution. Should monitoring results show evidence of plume migration additional plume characterization shall be required.

C. PROVISIONS:

1. In order to comply with Specification B.2, the dischargers shall

complete the following tasks according to the following compliance time schedule:

TASK	COMPLETION DATE
a. Review existing data to determine if the extent of soil contamination has been defined. Submit a report to the Executive Officer evaluating the data and including, if necessary, a proposal to determine the extent of soil pollution and to begin interim remedial action evaluation for the soil.	May 5, 1986
b. If the Executive Officer agrees with the conclusions reached in the report submitted in 1.a and/or additional soil cleanup is necessary, submit a recommendation acceptable to the Executive Officer for a remedial action plan for the soil.	September 22, 1986
c. Submit a report to the Executive Officer on the results and conclusions drawn from the drilling and sampling of soil-gas borings offsite in the downgradient direction.	May 5, 1986
d. Submit an interim report to the Executive Officer consisting of the data obtained from the groundwater monitoring wells constructed as a result of the soil-gas study described in 1.b above.	July 28, 1986
e. Submit a report to the Executive Officer on the results (boring logs, chemical analyses), and conclusions, of the following tasks:	September 22, 1986
(1) Complete the definition of pollutant distribution in the first encountered saturated unit to Birch Street.	
(2) Determine if pollutants have migrated to the next deeper saturated unit.	
f. If the pollutant plume remains undefined after tasks e(1) and e(2) complete the following tasks:	

(1) Submit a proposal to the Board describing the locations for additional groundwater monitoring wells to complete the definition of the lateral and vertical extent of pollution. September 22, 1986

(2) Submit a report to the Board describing the results of the approved proposal. December 22, 1986

2. In order to comply with Prohibitions A.1 and A.2 the dischargers shall meet the following compliance time schedule:

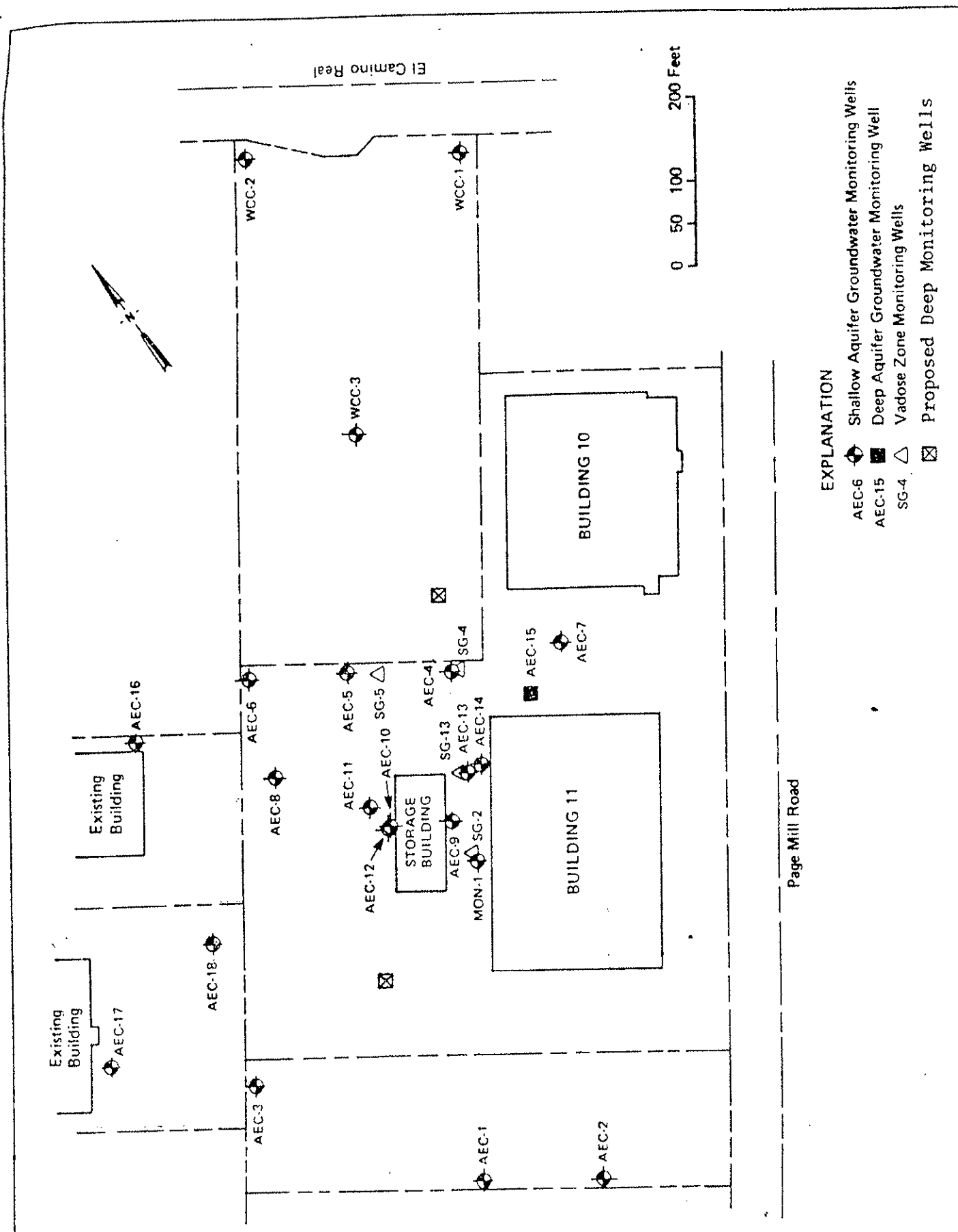
TASKS	COMPLETION DATE
a. Submit a report which evaluates interim cleanup alternatives and which contains or recommends an interim cleanup strategy for the site acceptable to the Executive Officer. If plume definition is completed after Task 1.e-	January 26, 1987
If plume definition is completed after Task 1.f -	April 20, 1987
b. Complete construction and implement approved cleanup alternative. If plume definition is completed after Task 1.e -	June 29, 1987
If plume definition is completed after Task 1.f -	October 19, 1987
3. The above actions should provide the discharger with the information necessary for projection of the time requirements and ultimate concentrations of pollutants remaining in the groundwater under the cleanup program, and estimates of the cost and effectiveness of a range of final cleanup alternatives. This information will be presented for Board consideration no later than one year following the implementation date specified above in Provision 2.b. Final cleanup limits shall be considered by the Board after this information is submitted in an adequate report.	
4. The discharger shall submit to the Board brief quarterly letter reports on the status of the investigation within 45 days of the end of each calendar quarter with the first report due by May 15, 1986. These quarterly reports will also contain the information specified in the attached self-monitoring program.	
5. All samples shall be analyzed by State-approved laboratories using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.	
6. The dischargers shall permit the Board or its authorized representative	

in accordance with Section 13267(c) of the California Water Code:

- a. Entry upon premises on which any pollution sources exist, or may potentially exist, or on which any required records are kept;
 - b. Access to copy any records required to be kept under terms and conditions of this order.
 - c. Inspection of any monitoring equipment or methods required by this order.
 - d. Sampling of any groundwater or soil which is accessible, or may become accessible as part of any investigation or remedial action program, to the dischargers.
7. The dischargers shall file a report on any material changes in the nature, quantity or transport of polluted groundwater associated with the conditions described in this Order.
 8. The dischargers shall maintain in good working order and operate, as efficiently as possible, and facility or control system installed to achieve compliance with the requirements of this Order.
 9. The Board will review this Order periodically and may revise the requirements when necessary. This may include further investigation and cleanup if warranted by monitoring results and other considerations.

I, Roger B. James, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on April 16, 1986.


ROGER B. JAMES
Executive Officer



EXPLANATION

- AEC-6 Shallow Aquifer Groundwater Monitoring Wells
- AEC-15 Deep Aquifer Groundwater Monitoring Well
- SG-4 Vadose Zone Monitoring Wells
- Proposed Deep Monitoring Wells

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

T E N T A T I V E
SELF-MONITORING PROGRAM
FOR

Hewlett Packard, 604 Page Mill Road

Stanford University

WDR NO. 86-27

ORDER NO.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a monitoring program by a waste discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements and prohibitions established by this Regional Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent of other limitations, discharge prohibitions, national standards or performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the latest edition of Standard Methods for the Examination of Water and Wastewater prepared and published jointly by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation, EPA "Test Methods" for organic chemical analysis, or other methods approved and specified by the Executive Officer of this Regional Board.

C. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Violations of Requirements

In the event the discharger is unable to comply with the conditions of the waste discharge requirements and prohibitions due to:

- (a) maintenance work, power failures, or breakdown of waste treatment equipment, or

- (b) accidents caused by human error or negligence, or
- (c) other causes such as acts of nature,
- (d) poor operation or inadequate system design,

The discharger shall notify the Regional Board office by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within two weeks of the telephone notification. The written report shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to prevent the problem from recurring.

The discharger shall file a written report at least 15 days prior to advertising for bid on any construction project which would cause or aggravate the discharge of waste in violation of requirements; said report shall describe the nature, costs, and scheduling of all action necessary to preclude such discharge.

In addition, if the noncompliance caused by items (a), (b), (c), or (d) above is with respect to any of the effluent limits, the waste discharger shall promptly accelerate this monitoring program as required by the Board's Executive Officer for those constituents which have been violated. Such analysis shall continue until such time as the effluent limits have been attained, or until such time as the Executive Officer determines to be appropriate. The results of such monitoring shall be included in the regular Self-Monitoring Report.

2. Bypass Reports

Bypassing reporting shall be an integral part of regular monitoring program reporting. A report on bypassing of untreated waste or bypassing of any treatment units shall be made which will include cause, time and date, duration and estimated volume bypassed, method used in estimating volume, and persons and agencies notified. Notification to the Regional Board shall be made immediately by telephone (415-464-1255), followed by a written account within 15 days.

3. Self-Monitoring Reports

a. Reporting Period:

Written reports shall be filed regularly for each calendar quarter by the fifteenth day of the following month.

b. Letter of Transmittal:

A letter transmitting self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period and actions taken or planned for correcting any requirement violation. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to this correspondence will be satisfactory.

Monitoring reports and the letter transmitting reports shall be signed either by a principal executive officer or other duly authorized employee. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true and correct.

c. Data Results:

- (1) Results from each required analysis and observation shall be submitted in the quarterly self-monitoring report. Results shall also be submitted for any additional analyses performed by the discharger for parameters for which effluent limits have been established by the Board.
- (2) The report shall include a discussion of unexpected operational changes which could affect performance of the treatment system, such as flow fluctuations, maintenance shutdown, etc.
- (3) The report shall also include a table identifying by method number the analytical procedures used for analyses. Any special methods shall be identified and should have prior approval of the Board's Executive Officer.

- (4) Lab results should be copied and submitted as an appendix to the regular report.
- (5) A map shall accompany the report, showing sampling locations and flow path to receiving waters.
- (6) The report shall include an annual waste summary by month, for the current year showing the minimum, maximum, and average value for the month. The report for December shall include minimum, maximum and average for the year.

D. DESCRIPTION OF SAMPLING STATIONS

GROUNDWATER

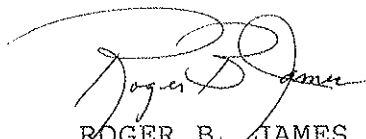
<u>Station</u>	<u>Description</u>
WCC-1,2; AEC-1, 7,15,16,17 and additional wells as appropriate	Points on the edge of the pollutant plume.

E. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis shall be that given as Table I.

I, Roger B. James, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. .
2. Was adopted by the Board on April 16, 1986.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer.


 ROGER B. JAMES
 Executive Officer

Attachments: Table I

TABLE 1
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	W-1,2; ABC- 1,7,15,16, 17												
TYPE OF SAMPLE													
EPA 601/602	Q												
EPA 624	Y												

LEGEND FOR TABLE

- G = grab sample
- D = once each day
- M = once each month
- Q = quarterly, once in March, June, September and December
- M/Q = monthly for three months at startup of operation; reduced to quarerly thereafter
- Y = once each year